

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A genetically modified plant cell comprising at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, wherein the foreign nucleic acid molecule comprises at least one sequence coding an OK1 protein, and further wherein said genetically modified plant cell has a reduced activity of at least one OK1 protein in comparison with corresponding wild type plant cells that have not been genetically modified.
2. (Currently amended) A genetically modified plant cell comprising at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein. The genetically modified plant cell according to Claim 1, wherein the at least one foreign nucleic acid molecule comprises:
 - a) a nucleic acid molecule coding a protein having the amino acid sequence of SEQ SEQ ID NO: 4;
 - b) a nucleic acid molecule coding a protein having an amino acid sequence with at least 95% identity to SEQ ID NO: 4;
 - c) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 3, or the complementary sequence thereof; or
 - d) a nucleic acid molecule having at least 95% identity to the nucleic acid molecule of a) or c), and further wherein said genetically modified plant cell has a reduced activity of at least one OK1 protein in comparison with corresponding wild type plant cells that have not been genetically modified.
3. (Canceled)
4. (Previously presented) The genetically modified plant cell according to Claim 1, wherein the foreign nucleic acid molecule comprises:
 - a. a DNA molecule, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;
 - b. a DNA molecule, which by a co-suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;

- c. a DNA molecule, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein;
- d. a DNA molecule, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- e. a nucleic acid molecule introduced by *in vivo* mutagenesis, which leads to a mutation or an insertion of a heterologous sequence in at least one endogenous gene coding an OK1 protein, wherein the mutation or insertion reduces expression of a gene encoding an OK1 protein or results in the synthesis of inactive OK1 proteins;
- f. a nucleic acid molecule, which encodes an antibody, wherein the antibody reduces activity of at least one OK1 protein by binding at least one OK1 protein;
- g. a DNA molecule comprising one or more transposons, wherein the integration of these transposons leads to a mutation or an insertion in at least one endogenous gene encoding an OK1 protein, which reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 proteins; or
- h. a T-DNA molecule, which, due to insertion in at least one endogenous gene coding an OK1 protein, reduces expression of at least one gene encoding an OK1 protein, or results in the synthesis of inactive OK1 protein.

5. (Previously presented) The plant cell according to Claim 1, which synthesises a modified starch in comparison with corresponding wild type plant cells that have not been genetically modified.

6. (Previously presented) A plant comprising one or more plant cells according to Claim 1.

7. (Previously presented) A plant according to Claim 6, which is a starch-storing plant.

8. (Previously presented) A plant according to Claim 7, which is a wheat or maize plant.

9. (Previously presented) A plant according to Claim 6, which has a high starch phenotype.

10. (Previously presented) Propagation material of a plant according to Claim 6.

11. (Previously presented) A harvestable plant part of a plant according to Claim 6.

12. (Currently amended) A method of manufacturing a genetically modified plant according to Claim 6 comprising:

- a. genetically modifying a plant cell by introducing at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein into said plant cell, wherein the foreign nucleic acid molecule comprises at least one sequence coding an OK1 protein, and further wherein said genetically modified plant cell has a reduced activity of at least one OK1 protein in comparison with corresponding wild type plant cells that have not been genetically modified;
- b. regenerating a plant from one or more genetically modified plant cells from Step a); and
- c. optionally producing one or more additional plants from a plant according to Step b).

13. (Canceled)

14. (Currently amended) The method according to Claim 123, wherein the foreign nucleic acid molecule comprises:

- a. a DNA molecule, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- b. a DNA molecule, which by a co-suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;
- c. a DNA molecule, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein;
- d. a DNA molecule, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- e. a nucleic acid molecule introduced by *in vivo* mutagenesis, which leads to a mutation or an insertion of a heterologous sequence in at least one endogenous gene encoding an OK1 protein, wherein the mutation or insertion reduces expression of a gene coding an OK1 protein or results in the synthesis of inactive OK1 proteins;
- f. a nucleic acid molecule, which encodes an antibody, wherein the antibody reduces activity of at least one OK1 protein by binding at least one OK1 protein;

g. a DNA molecule comprising one or more transposons, wherein the integration of these transposons leads to a mutation or an insertion in at least one endogenous gene encoding an OK1 protein, which reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 proteins; or

h. a T-DNA molecule, which, due to insertion in at least one endogenous gene encoding an OK1 protein, reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 protein.

15. (Previously presented) The method according to Claim 12, wherein the genetically modified plant synthesises a modified starch in comparison with corresponding wild type plants that have not been genetically modified.

16. (Currently amended) A recombinant nucleic acid molecule comprising a promoter, which initiates transcription in plant cells, and at least one nucleic acid sequence comprising:

- a nucleic acid sequence, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein having an amino acid sequence with at least 95% identity to SEQ ID NO: 4;
- a nucleic acid sequence, which by a co-suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein having an amino acid sequence with at least 95% identity to SEQ ID NO: 4;
- ~~a nucleic acid sequence, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein; or~~
- a nucleic acid sequence, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein having an amino acid sequence with at least 95% identity to SEQ ID NO: 4.

17. (Currently amended) A vector comprising a recombinant nucleic acid molecule according to claim 16 comprising at least one nucleic acid sequence comprising:

- ~~a nucleic acid sequence, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;~~

- b. a nucleic acid sequence, which by a co suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;
- c. a nucleic acid sequence, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein; or
- d. a nucleic acid sequence, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein.

18. (Previously presented) A host cell, which is genetically modified with a recombinant nucleic acid molecule according to Claim 16.

19. (Currently amended) A composition comprising a recombinant nucleic acid molecule according to claim 16 comprising at least one nucleic acid sequence comprising:

- a. a nucleic acid sequence, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- b. a nucleic acid sequence, which by a co suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;
- c. a nucleic acid sequence, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein; or
- d. a nucleic acid sequence, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)
26. (Canceled)
27. (Canceled)
28. (Canceled)
29. (Previously presented) A host cell, which is genetically modified with a vector according to Claim 17.
30. (Currently amended) ~~The genetically modified plant cell according to Claim 1; A genetically modified plant cell comprising at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein,~~ wherein the foreign nucleic acid molecule comprises
 - (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene;
 - (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene; or
 - (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene.
31. (Currently amended) The genetically modified plant cell according to Claim 30 4, wherein the foreign nucleic acid molecule comprises
 - (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene;

- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene.

32. (Currently amended) The method according to Claim 14, A method of manufacturing a genetically modified plant comprising:

- a. genetically modifying a plant cell by introducing at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein into said plant cell, wherein the foreign nucleic acid molecule comprises
 - (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene;
 - (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene; or
 - (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene, wherein said genetically modified plant cell has a reduced activity of at least one OK1 protein in comparison with corresponding wild type plant cells that have not been genetically modified;
- b. regenerating a plant from one or more genetically modified plant cells from Step a); and
- c. optionally producing one or more additional plants from a plant according to Step b).

33. (Currently amended) The method according to Claim 32 ~~44~~, wherein the foreign nucleic acid molecule comprises

- (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene;
- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene.

34. (Currently amended) ~~The recombinant nucleic acid molecule according to Claim 16, wherein the foreign nucleic acid molecule comprises A recombinant nucleic acid molecule comprising a promoter, which initiates transcription in plant cells, and at least one nucleic acid sequence comprising~~

- (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene;
- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene.

35. (Currently amended) The recombinant nucleic acid molecule according to Claim 34-46, wherein the foreign nucleic acid molecule comprises

- (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene;

- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene.

36. (Currently amended) The Δ vector comprising a recombinant nucleic acid molecule according to Claim 34-47, wherein the foreign nucleic acid molecule comprises

- (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene;
- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 100 nucleotides of said at least one endogenous gene.

37. (Currently amended) The Δ vector comprising a recombinant nucleic acid molecule according to Claim 35, wherein the foreign nucleic acid molecule comprises

- (a) a DNA molecule, which codes at least one antisense RNA, which reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene;
- (b) a DNA molecule which, via a co-suppression effect, reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene; or
- (c) a DNA molecule that simultaneously encodes at least one antisense RNA and at least one sense RNA, where said antisense RNA and said sense RNA form a double-

~~stranded RNA molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein, said DNA molecule comprising at least 500 nucleotides of said at least one endogenous gene.~~

38. (New) The genetically modified plant cell according to Claim 2, wherein the foreign nucleic acid molecule comprises:

- a. a DNA molecule, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- b. a DNA molecule, which by a co-suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;
- c. a DNA molecule, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein;
- d. a DNA molecule, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- e. a nucleic acid molecule introduced by *in vivo* mutagenesis, which leads to a mutation or an insertion of a heterologous sequence in at least one endogenous gene coding an OK1 protein, wherein the mutation or insertion reduces expression of a gene encoding an OK1 protein or results in the synthesis of inactive OK1 proteins;
- f. a nucleic acid molecule, which encodes an antibody, wherein the antibody reduces activity of at least one OK1 protein by binding at least one OK1 protein;
- g. a DNA molecule comprising one or more transposons, wherein the integration of these transposons leads to a mutation or an insertion in at least one endogenous gene encoding an OK1 protein, which reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 proteins; or
- h. a T-DNA molecule, which, due to insertion in at least one endogenous gene coding an OK1 protein, reduces expression of at least one gene encoding an OK1 protein, or results in the synthesis of inactive OK1 protein.

39. (New) The plant cell according to claim 2, which synthesises a modified starch in comparison with corresponding wild type plant cells that have not been genetically modified.

40. (New) A plant comprising one or more plant cells according to claim 2.
41. (New) A plant according to claim 40, which is a starch-storing plant.
42. (New) A plant according to claim 41, which is a wheat or maize plant.
43. (New) Propagation material of a plant according to claim 40.
44. (New) A harvestable plant part of a plant according to claim 40.
45. (New) The plant cell according to claim 30, which synthesises a modified starch in comparison with corresponding wild type plant cells that have not been genetically modified.
46. (New) A plant comprising one or more plant cells according to claim 30.
47. (New) A plant according to claim 46, which is a starch-storing plant.
48. (New) A plant according to claim 47, which is a wheat or maize plant.
49. (New) Propagation material of a plant according to claim 46.
50. (New) A harvestable plant part of a plant according to claim 46.
51. (New) The plant cell according to claim 31, which synthesises a modified starch in comparison with corresponding wild type plant cells that have not been genetically modified.
52. (New) A plant comprising one or more plant cells according to claim 31.
53. (New) A plant according to claim 52, which is a starch-storing plant.
54. (New) A plant according to claim 53, which is a wheat or maize plant.
55. (New) Propagation material of a plant according to claim 52
56. (New) A harvestable plant part of a plant according to claim 52.
57. (New) A method of manufacturing a genetically modified plant according to claim 40 comprising:

(a) genetically modifying a plant cell by introducing at least one foreign nucleic acid molecule that reduces the expression of at least one endogenous gene encoding an OK1 protein into said plant cell, wherein the foreign nucleic acid molecule comprises

- i) a nucleic acid molecule coding a protein having the amino acid sequence of SEQ SEQ ID NO: 4;
- ii) a nucleic acid molecule coding a protein having an amino acid sequence with at least 95% identity to SEQ ID NO: 4;
- iii) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 3, or the complementary sequence thereof; or
- iv) a nucleic acid molecule having at least 95% identity to the nucleic acid molecule of i) or iii), and

further wherein said genetically modified plant cell has a reduced activity of at least one OK1 protein in comparison with corresponding wild type plant cells that have not been genetically modified;

- (b) regenerating a plant from one or more genetically modified plant cells from step a); and
- (c) optionally producing one or more additional plants from a plant according to step b).

58. (New) The method according to claim 57, wherein the foreign nucleic acid molecule comprises:

- a. a DNA molecule, which codes at least one antisense RNA, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- b. a DNA molecule, which by a co-suppression effect reduces expression of at least one endogenous gene encoding an OK1 protein;
- c. a DNA molecule, which codes at least one ribozyme, which splits specific transcripts of at least one endogenous gene encoding an OK1 protein;
- d. a DNA molecule, which codes at least one antisense RNA and at least one sense RNA, wherein the said antisense RNA and the said sense RNA form a double-stranded RNA molecule, which reduces expression of at least one endogenous gene encoding an OK1 protein;
- e. a nucleic acid molecule introduced by *in vivo* mutagenesis, which leads to a mutation or an insertion of a heterologous sequence in at least one endogenous gene encoding an

OK1 protein, wherein the mutation or insertion reduces expression of a gene coding an OK1 protein or results in the synthesis of inactive OK1 proteins;

- f. a nucleic acid molecule, which encodes an antibody, wherein the antibody reduces activity of at least one OK1 protein by binding at least one OK1 protein;
- g. a DNA molecule comprising one or more transposons, wherein the integration of these transposons leads to a mutation or an insertion in at least one endogenous gene encoding an OK1 protein, which reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 proteins; or
- h. a T-DNA molecule, which, due to insertion in at least one endogenous gene encoding an OK1 protein, reduces expression of at least one gene coding an OK1 protein, or results in the synthesis of inactive OK1 protein.

59. (New) The method according to claim 57, wherein the genetically modified plant synthesises a modified starch in comparison with corresponding wild type plants that have not been genetically modified.